(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau





(43) International Publication Date 31 December 2003 (31.12.2003)

PCT

(10) International Publication Number WO 2004/002147 A1

(51) International Patent Classification⁷: H04J 3/07, H04N 5/46

H04N 7/01,

(21) International Application Number:

PCT/IB2003/002954

(22) International Filing Date: 13 June 2003 (13.06.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 02291577.1

25 June 2002 (25.06.2002) E

- (71) Applicant (for all designated States except US): KONIN-KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): LOYER, Philippe [FR/FR]; 156 Boulevard Haussmann, F-75008 Paris (FR).
- (74) Agent: VAN OUDHEUSDEN-PERSET, Laure; Société Civile SPID, 156 Boulevard Haussmann, F-75008 Paris (FR).

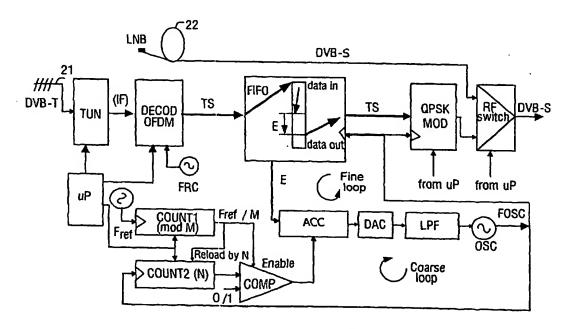
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CLOCK RECOVERY FOR A DVB-T TO DVB-S TRANSMODULATOR



(57) Abstract: The invention relates to a clock recovery system for a transmodulator allowing reception of a COFDM/DVB-T video signal encoded in the Terrestrial Digital Video Broadcasting format (DVB-T), via a terrestrial antenna and via a DVB-S like receiver suited to receive a QPSK/DVB-S video signal encoded in the Satellite Digital Video Broadcasting format (DVB-S),

INTERNATIONAL SEARCH REPORT

PCT/IB D2954

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H04N7/01 H04C H04J3/07 H04N5/46 According to International Patent Classification (IPC) or to both national classification and IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) HO4N HO4J GO6F HO3L Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data C. DOCUMENTS CONSIDERED TO BE RELEVANT Category 9 Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X WO 91 12678 A (SIEMENS AG) 4,6 22 August 1991 (1991-08-22) page 1, line 1 -page 3, line 9 1 - 3, 5page 4, line 32 -page 8, line 34 US 5 731 770 A (MINODA HIDENORI) Α 1-624 March 1998 (1998-03-24) page 1, line 4 -page 3, line 14; claim 1 P,A WO 02 096098 A (CATREVAUX ALAIN ; NOVO S A 1 - 6A (FR)) 28 November 2002 (2002-11-28) page 1, line 3 -page 7, line 16 page 15, line 7 -page 17, line 12 Further documents are listed in the continuation of box C. Patent family members are listed in annex. Special categories of cited documents: *T* later document published after the international filing date or priority date and not in conflict with the application but "A" document defining the general state of the art which is not considered to be of particular relevance cited to understand the principle or theory underlying the Invention "E" earlier document but published on or after the International "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention citation or other special reason (as specified) cannot be considered to involve an inventive step when the document is combined with one or more other such docu-*O* document referring to an oral disclosure, use, exhibition or other means ments, such combination being obvious to a person skilled document published prior to the international filing date but later than the priority date claimed in the art. "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the International search report 13 October 2003 27/10/2003 Name and mailing address of the ISA Authorized officer European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo ni, van Hoorick, J Fax: (+31-70) 340-3016

INTERNATIONAL SEARCH REPORT

PCT/I /02954

				PC1/1	702954
Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 9112678	Α	22-08-1991	AT	110205 T	15-09-1994
			AU	642948 B2	04-11-1993
			AU	6917091 A	03-09-1991
			BR	9007998 A	27-10-1992
			CA	2076039 A1	17-08-1991
			DE	59006856 D1	22-09-1994
			DK	515376 T3	14-11-1994
			WO	9112678 A1	22-08-1991
			EP	0515376 A1	02-12-1992
			ES	2060351 T3	16-11-1994
			FI	923638 A	14-08-1992
			JP	5504240 T	01-07-1993
			NO	923190 A	14-08-1992
			US	5426672 A	20-06-1995
US 5731770	Α	24-03-1998	JP	3037582 B2	24-04-2000
			ĴΡ	8287600 A	01-11-1996
					01 11 1990
WO 02096098	Α	28-11-2002	FR	2825221 A1	29-11-2002